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ARTIFICIAL LIMB DEPARTMENT
MARE ISLAND, VALLEJO, CALIFORNIA
31 March 1949

DOCUMENTS SECTION

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N929
From: Officer in Charge, Artificial Limb Department
To: Medical Officer in Command

Subj: Monthly Report of the Experimental Work of the Artificial Limb Department. *March*

Ref: (a) Advisory Committee on Artificial Limbs ltr dtd 21 June 1948

1. Monthly report required by reference (a) is hereby submitted.
2. Arrangements have been completed, and the school for the below-knee and below-elbow prostheses is in session. Limb fitters from New York, Washington, D.C., Los Angeles and the Bay Area are in attendance at the school.
3. The following projects are under production, experimentation and further study:

(a) Lower Extremities Section:

I. Foot and Ankle.

Functional ankles, utilizing the cable joint, are being fitted to amputees. The ankle block is now being manufactured out of sap walnut instead of basswood for additional strength. This type of wood also finishes smoother, especially in the recesses for the rubber bumper. There is only a slight difference in weight.

II. Shank

Orders for dies for the cosmetic shank have been submitted. There are certain small alterations necessary in the shape of the cosmetic shin, as compared to the human norm, in order to make allowances for the necessary room for the mechanical ankle and knee joints.

III. Knee

(a) Mechanical

Model of the cosmetic knee shape block, with the kneecap incorporated into the shin, is being manufactured and fitted to an amputee. The new knee stop, of an altered design, is being tested on a number of cases.

IV. Cosmetic Problem

Spectrafoam, 1/8" thick, has been ordered, and it is believed that this new material will be an improvement over the 1/4" Spectrafoam that is in use at the present time.

V. Brief summary of status of models as a unit.

The new hip joint for the hydraulic tilting table has been completed and is being fitted on a new socket which has been made of plastic and lined with sponge rubber and horse hide. When completed, this unit will be fitted to an amputee in order to compare it with the present model.

Two new cases of below-knee suction socket have been fitted, and are working satisfactorily with the exception of the presence of a fast air leak in the material. This is undesirable and we have tried to seal the socket in a number of different ways, but so far have been unsuccessful. We believe, however, that this problem can be solved.

(b) Upper Extremities Section:

I. The below-elbow joint in the new design is being fitted routinely to patients.

II. Hands, Hooks and Tools.

We are fitting a case which has a carpal disarticulation with a Robinson hand and it has been necessary to cut down the base of the hand to allow sufficient room for the end of the stump. It has been possible to reduce the length of the hand by as much as 1-1/2", and still have a satisfactory, working hand. This reduction in size at the base of the hand is not necessary in a conventional stump, but is necessary when utilizing this hand on a wrist or carpal disarticulation.

An Army type lock unit has been received from Sierra Engineering Co., and we are attempting to re-design both the hand and the Army lock in order to wed them together.

III. Cosmetic Problem

No work has been done on the cosmetic problem of the arm this month.

IV. Harness and/or other outside control.

The new type cable and cable housing that has been received from Sierra Engineering Co. has been fitted on three amputees. One cable broke after two weeks of use. The other two units that have been fitted are standing up satisfactorily at the present time. It appears that the stress on the housing and cable occurs at the attach point of the cable to the arm, where a sharp angle occurs and the cable frays and finally breaks. Using the swivel button of the present design is an improvement, but it is still not entirely satisfactory, and it is believed that a re-design of the swivel post is necessary.

V. Brief summary of status of models as a unit.

A new Robinson above-elbow arm has been received and it is planned to fit this to an amputee in order to test it.

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